pentamethyltrisiloxane, 2,4,6-trisilaoxane, and cyclo-1,3,5,7-tetrasilano-2,6-dioxy-4,8-dimethylene.

37. (New) The method of claim 33, wherein the dispersed voids are formed by annealing the substrate.

38. (New) The method of claim 33, wherein the siloxane comprises four or more methyl groups bonded to the silicons.

REMARKS

This is intended as a full and complete response to the Final Office Action dated February 26, 2003, having a shortened statutory period for response set to expire on May 26, 2003. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-18 are pending in the application and stand rejected.

Claims 1-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Grill*, U.S. Patent No. 6,312,793, and *Tsukune, et al.*, U.S. Patent No. 5,314,724. The Examiner asserts that it would have been obvious to use *Tsukune, et al.'s* oxidizable chemical including tertiarybutoxy in *Grill's* process to provide process chemicals for the formation of a planarized insulation film having a desired thickness and high reliability.

Applicants have amended claims 1 and 5 to remove "tertiarybutoxy" and "tertiarybutyl, tertiarybutoxy", respectively. Applicants have canceled claims 2-4, 9-15, and 17. Applicants submit that the changes made herein do not introduce new matter. Applicants submit that *Grill* and *Tsukune, et al.*, alone, or in combination, do not describe or suggest at least one oxidizable chemical comprising a member selected from the group consisting of furfuryl, furfuryloxy, and neopentyl. Thus, Applicants submit that *Grill* and *Tsukune, et al.*, alone, or in combination do not teach, show, or suggest a deposition process comprising introducing a siloxane comprising two or more silicons and from two to five carbons bonded to the silicons into a processing chamber, introducing at least one oxidizable chemical comprising a member selected from the group consisting of furfuryl, furfurlyoxy, and neopentyl into the processing chamber,

reacting the siloxane and the at least one oxidizable chemical with an oxidizing gas at a temperature that retains the member in a conformal layer, and converting the member to dispersed voids, as recited in amended claim 1. Applicants respectfully request withdrawal of the rejection of claim 1, and of claims 16 and 18, which depend thereon.

Applicants further submit that *Grill* and *Tsukune, et al.*, alone, or in combination, do not describe or suggest at least one oxidizable chemical comprising silicon and a member selected from the group consisting of furfuryl, furfuryloxy, and neopentyl. Thus, *Grill*, and *Tsukune, et al.*, alone, or in combination do not teach, show, or suggest a deposition process comprising introducing a siloxane comprising two or more silicons and from two to five carbons bonded to the silicons into a processing chamber, introducing at least one oxidizable chemical comprising a member selected from the group consisting of furfuryl, furfuryloxy, and neopentyl into the processing chamber, wherein the at least one oxidizable chemical comprises silicon, reacting the siloxane and the at least one oxidizable chemical with an oxidizing gas at a temperature that retains the member in a conformal layer, and converting the member to dispersed voids, as recited in amended claim 5. Applicants respectfully request withdrawal of the rejection of claim 5, and of claims 6-8, which depend thereon.

Applicants have added new claims 26-38 to claim additional aspects of the invention. Applicants submit that the changes made herein do not introduce new matter. Claims 28 and 35 specify that the oxidizable chemical is difurfuryl ether and are within the scope of claims 1 and 33 respectively.

Claims 33-38 claim another aspect of the invention. In accordance with 37 C.F.R. § 1.607(c), Applicants note that Claim 33 substantially corresponds to claim 1 of U.S. Patent No. 6,541,398, which is included in the Supplemental Information Disclosure Statement filed herein.

The oxidizable chemicals in new claims 26-38 are supported by the parent specification, U.S. patent application Serial No. 09/484,689. Applicants submit that claims 26-30 are patentable over *Grill* and *Tsukune, et al.*, as well as the references of record, for the reasons discussed above with respect to claim 1. Applicants submit that claims 30-32 are patentable over *Grill* and *Tsukune, et al.*, as well as the references of record, for the reasons discussed above with respect to claim 5.

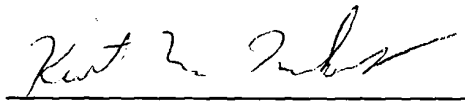
Applicants further submit that *Grill* and *Tsukune, et al.*, alone, or in combination, do not teach, show, or suggest a method for depositing a low dielectric constant film, comprising introducing a siloxane comprising two or more silicons and from two to five carbons bonded to the silicons into a processing chamber, introducing at least one oxidizable chemical comprising a cyclic ring consisting of carbon, oxygen, and hydrogen into the processing chamber, reacting the siloxane and the at least one oxidizable chemical with an oxidizing gas at a temperature that retains the cyclic ring in a conformal layer, and converting the cyclic ring to dispersed voids, as recited in claim 33. Applicants submit that *Grill* does not disclose a method that includes converting a cyclic ring consisting of carbon, oxygen, and hydrogen to a dispersed void. *Grill* describes a multi-phase film that has a first phase of SiCOH and a second porous phase of carbon and hydrogen. *Grill* describes the second phase as having both carbon and hydrogen and pores. *Grill* does not describe converting material, such as the cyclic ring consisting of carbon, oxygen, and hydrogen, to dispersed voids, as described in the instant application. Substantially converting the cyclic hydrocarbon compounds of *Grill* to dispersed voids would result in the removal of the carbon and hydrogen phase of *Grill*. However, the carbon and hydrogen phase is a required part of the multiphase films of *Grill*. *Grill* also describes an optional third phase of a multi-phase film that includes either 1) open regions created by the presence of guest molecules, such as Ge, N, or F, or 2) another hydrocarbon phase having pores. *Grill* does not describe removing cyclic rings to create the pores. *Tsukune, et al.* describes reacting an organosilane or an organosiloxane with a gas containing H and OH to deposit a film, and then removing the organic groups from the film to form a silicon oxide or silicon oxide-like layer. *Tsukune, et al.* does not describe reacting an organosiloxane comprising two or more silicons and from two to five carbons bonded to the silicons with at least one oxidizable chemical comprising a cyclic ring consisting of carbon, oxygen, and hydrogen and an oxidizing gas or converting a cyclic ring consisting of carbon, oxygen, and hydrogen to dispersed voids. Applicants respectfully request entry and allowance of new claims 33-38.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the method or apparatus of the present invention.

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the office action. Therefore, it is believed that a detailed discussion of the secondary references is not deemed necessary for a full and complete response to this office action. Accordingly, allowance of the claims is respectfully requested.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A method for depositing a low dielectric constant film, comprising:

introducing a siloxane comprising two or more silicons and [four or more methyl groups] from two to five carbons bonded to the silicons into a processing chamber;

introducing at least one oxidizable chemical comprising a member selected from the group consisting of [tertiarybutoxy,] furfuryl, furfuryloxy, and neopentyl into the processing chamber;

reacting the siloxane and the at least one oxidizable chemical with an oxidizing gas at a temperature that retains the member in a conformal layer; and

[annealing the conformal layer at a temperature sufficient to convert] converting the member to dispersed voids.

5. (Amended) A method for depositing a low dielectric constant film, comprising:

introducing a siloxane comprising two or more silicons and [four or more methyl groups] from two to five carbons bonded to the silicons into a processing chamber;

introducing at least one oxidizable chemical comprising a member selected from the group consisting of [tertiarybutyl, tertiarybutoxy,] furfuryl, furfuryloxy, and neopentyl into the processing chamber, wherein the at least one oxidizable chemical comprises silicon;

reacting the siloxane and the at least one oxidizable chemical with an oxidizing gas at a temperature that retains the member in a conformal layer; and

[annealing the conformal layer at a temperature sufficient to convert] converting the member to dispersed voids.